



# SUSTAINABLE WATER PARTNER PROGRAM



## Cape Byron Power, Broadwater – A Sustainable Water Partner

### CASE STUDY



Cape Byron Power, co-generation energy plant in Broadwater, is a proud partner of Rous County Council through the Sustainable Water Partner Program. Rous County Council has recognised Cape Byron Power for its commitment to water efficiency.

### ACHIEVEMENTS – WATER EFFICIENCY AND OPTIMISATION

This project has focused on understanding water inputs and where and how water is used across operations of Cape Byron Power’s energy plant. Given the complexities of this business in relation to where and how water is used, this project has focused on enhancing the visibility of water consumption across all operations.

In addition to the unique usage requirements of this site, seasonal variation in water consumption exists with higher consumption experienced during the sugar-crush season when the adjoining sugar mill (Sunshine Sugar) is in peak production.

Through smart metering technology this project has accomplished a greater understanding of water usage amongst operational and management staff of Cape Byron Power.

#### WHAT ARE SMART WATER METERS?

*Smart water meters use wireless technology to record water usage data which is collected more frequently and more accurately without having to physically read the water meter. The collection of data on a near real-time basis improves the ability to identify any unusual activity such as water loss, leakage or reduction in water supply.*

With access to data that is close to real-time, provided by more than ten smart meters (including additional sub-meters) the following results were verified:

- Leakage and water loss is next to nothing during shutdown periods when the site is non-operational. Smart metering technology

enables leakage and water loss to be continuously monitored and swiftly investigated and acted on if/when issues arise.

- Operations and processes of Cape Byron Power require the minimum water volume being consumed. The site is using water as efficiently as possible given their operational needs.
- Given the minimum use requirements of the site in the context of aiming to reduce demand on our region’s drinking water supply, an opportunity to substitute town water with bore water was identified. This project will optimise the use of high-quality, treated town water by replacing 80% to 90% of use with bore water as an alternative (as per licence agreements). Once a new bore pipe is commissioned, data will allow the review of town water savings in terms of annual volume saved through substitution.

To assist with the ongoing monitoring of smart metering data a custom dashboard was built which not only displays relevant water consumption data in a user-friendly format, though also allows for better data interrogation and interpretation. The data dashboard incorporates useful tools including benchmark comparisons which allow for water consumption to be compared during elected time periods i.e., has consumption varied or remained similar at the same time over consecutive years?

#### Complementary works by Sunshine Sugar Mill

This project has also incorporated water efficiency investigations and subsequent works with the adjoining sugar mill, managed by Sunshine Sugar. Sunshine Sugar have up-

### PROJECTS & ACHIEVEMENTS – WATER EFFICIENCY AND COST SAVINGS

Preventing **water leaks** by installing smart metering

Optimising **volume of town water** consumed on site

Replacing **80-90%** of town water with **bore water**

An estimated annual saving of **4 million litres** of town water for Sunshine Sugar Mill

graded their equipment and monitoring practices by installing a new turbidity sensor. This new monitoring equipment has resulted in a significant reduction in town water consumption, an estimated annual saving of more than 4 million litres annually, at an equivalent cost saving of more than \$10,000.

### Improving business practices and improving water efficiency

Water is a significant expense for Cape Byron Power particularly as their facility relies on water supply to drive many of their operations including two biomass fired boilers to produce steam for electricity generation.

To investigate different water efficiency options, Rous County Council in partnership with Cape Byron Power and specialist consultancy, Websters Group, embarked on a collaborative project to understand the Plant's water needs, associated costs and projects to improve water optimisation.

Several site visits and walkthrough assessments were completed to better understand the internal workings of the Plant prior to the commissioning, installation and calibration of smart metering equipment. Smart metering was recommended to allow continuous monitoring of water inputs across site and facilitate the identification and determination of potential water efficiency projects.

The installation of smart metering led to the development of a customised dashboard where all water coming into the site can be tracked and monitored. Following extensive monitoring, a Water Saving Plan was also developed to reflect the findings as well as investigate the total costs, outcomes and return on investment on future water efficiency projects.

The site assessments, investigations and planning that took place were fully funded through Rous County Council's Sustainable Water Partner Program.

*Smart metering is an invaluable tool for Cape Byron Power to instantly respond to any unusual spikes in water use. The data that smart metering technology provides means we can efficiency monitor our water consumption and investigate and respond to any abnormalities in a timely manner.*

*Cape Byron Power is committed to continuous improvement and best practice standards. By being a Sustainable Water Partner there are ongoing positive impacts for our business as well as for the wider community by reducing demand on our precious drinking water supply.*

*Water is an essential part of our operations. Water efficiency and optimisation is not only important for our environment, but it makes sound business sense.*

**Todd Andrews, Cape Byron Power**  
Broadwater Co-Generation Operations Manager

*The Sustainable Water Partner program is an important contribution to firming regional water demand and securing our regional water supply.*

*With a focus on industrial water management, the bespoke digital dashboard has been designed to provide near-real time process flow diagrams, water transfer costing linked to pump energy usage and meter-by-meter detailed analysis for all major site processes.*

*To date the tool has not only assisted in the design of water saving projects but has also provided engineering and maintenance insights that would have otherwise been undetected.*

*The project with Cape Byron Power is a leading example of a water utility using digital water management tools to build relationships with large water users interested in partnering for a water efficient future.*

**Ryan Dillon, Websters Group, Managing Director**



## CAPE BYRON POWER

Cape Byron Power, operated by Cape Byron Management, consists of two 30 MW biomass fired power stations, on the NSW north coast. Together, these form one of the largest renewable base load generators in Australia.

The electricity produced by Cape Byron Power is predominantly produced from sugar cane milling waste, along with certain types of wood residues and energy crops, commonly referred to as 'biomass' fuel.

[www.capebyronpower.com](http://www.capebyronpower.com)



## ROUS COUNTY COUNCIL

Rous County Council is the regional water supply authority providing bulk water to the Council areas of Ballina, Byron, Lismore Shires and the Evans Head area. We work closely with our constituent councils across these local government areas to deliver the Sustainable Water Partner Program in partnership with local businesses like Cape Byron Power.

[www.rous.nsw.gov.au](http://www.rous.nsw.gov.au)

## GET INVOLVED IN THE SUSTAINABLE WATER PARTNER PROGRAM

The aim of the Sustainable Water Partner Program is to support businesses to make changes that will have lasting benefits for the business and broader community - not only saving water but increasing business profitability through lower water and sewer costs.

As part of the program, Rous County Council can offer businesses with an annual water consumption more than five megalitres a fully funded Water Saving Plan as well as rebates of up to \$25,000 annually to implement water saving projects. For small to medium size enterprises, using less than five megalitres annually, we also offer support through water efficiency planning and rebates.

### THIS PROJECT IS REGIONALLY SUPPORTED BY



Contact Rous County Council for eligibility details phone (02) 6623 3800 or email [council@rous.nsw.gov.au](mailto:council@rous.nsw.gov.au)

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